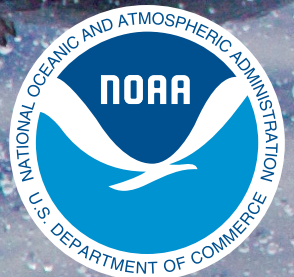
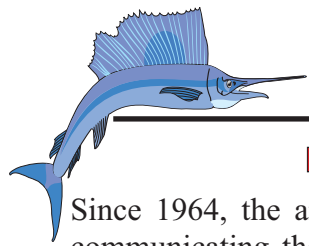


The Southwest Fisheries Science Center's

2013 BILLFISH NEWSLETTER

- **2011 & 2012
Billfish Tagging
and Recoveries**
- **2011 & 2012
International Billfish
Angler Survey:
Trends in Catch Rates**
- **Top Anglers and
Captains Acknowledged**
- **Highlight on Western
Atlantic Billfish Tagging**





PROLOGUE

Since 1964, the annual *Billfish Newsletter* has been communicating the results of the cooperative efforts between fishery scientists and billfish anglers. In 2013, we celebrated the 50th year of NOAA Fisheries and the billfish angling community working together to promote ethical angling techniques by tagging and releasing billfish. Additionally, cooperative anglers have participated in the International Billfish Angler Survey since 1969, creating one of the longest data time-series available for these gamefish while charting long-term trends in relative abundance for several key species. These combined efforts, among others, are essential to maintaining and assessing the health of billfish stocks. The Southwest Fisheries Science Center remains committed to working with billfish anglers to ensure these goals are met.

Dr. Francisco Werner
Director, Southwest Fisheries Science Center

INTRODUCTION

The 2013 *Billfish Newsletter* describes ongoing billfish research projects conducted at the NOAA Fisheries Southwest Fisheries Science Center (SWFSC-<http://swfsc.noaa.gov/>). The results of the 2011 and 2012 International Billfish Angler Survey and the Cooperative Billfish Tagging Program for the Pacific are described in this issue. The data presented are the result of cooperation with recreational anglers, sportfishing clubs, commercial fishers, and agencies affiliated with the SWFSC. We express our sincere gratitude to anglers who completed the Angler Survey forms and also to those who tagged and released billfish as well as reported recaptures. Your efforts are important for monitoring and conserving these magnificent fish.

INTERNATIONAL BILLFISH ANGLER SURVEY

The Billfish Angler Survey provides comprehensive estimates of recreational billfish angling success for the Pacific Ocean. These data have been collected continuously since 1969, allowing a key index of fish abundance known as catch-per-unit-effort (CPUE), measured as number of billfish caught per angler fishing day, to be calculated over an impressive 45 year time period. Trends in CPUE tracked over time serve as an

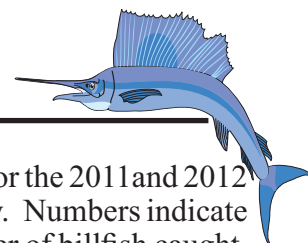
indicator of changes in the health of billfish stocks and can provide a measure of relative abundance. These indices of relative abundance are used for analyses of stock condition, developing management options, and monitoring fishery interactions.

In order to improve the reliability of the catch and effort statistics we encourage anglers to submit a complete and accurate Angler Survey. The Survey form is mailed to anglers who have submitted a completed Angler Survey or Billfish Tagging card in the last three years. If you or someone you know does not currently receive the Angler Survey or would like to receive additional forms, please contact us. Alternatively, the form can be downloaded from the SWFSC website and mailed to our office: <http://swfsc.noaa.gov/FRD-Billfish/>.

Fishing effort, in angler fishing days, and CPUE, in billfish catch per angler fishing day, are shown by location in **Table 1** for the duration of 2011 through 2012. Survey results are primarily from Pacific locations, although anglers also reported fishing activity in the Atlantic and Indian Oceans. During the two year reporting period, approximately 500 people per year reported their billfish fishing results and the overall CPUE throughout all locations was 0.46. The CPUE during 2011 and 2012 was 0.44 and 0.48, respectively.

These CPUEs were relatively low in comparison to the annual average for the five prior years (2006-2010; 0.61 CPUE). Dating back to 1969, the average annual CPUE reported by anglers was 0.50 but there have been some notable fluctuations during that time. There were some lean years during the 1970s when commercial fishing pressure on billfish was high. The five year annual average CPUE reported between 1975 and 1979 was 0.34. Conversely, between 2003 and 2007 anglers reported an annual average CPUE of 0.74.

The data we received from Survey participants also allowed us to examine CPUE at many popular billfish fishing locations. The three most heavily fished areas included southern California, Hawaii, and Baja California, Mexico. Off southern California, anglers have reported slow fishing during the three most recent reporting years. The three lowest annual CPUEs on record for this location are 2011 (0.02), 2012 (0.03), and 2010 (0.04). It wasn't long before these recent lean years that California anglers reported much better



success; a CPUE above 0.15 was reported in every year from 2004 through 2009. Indeed, even the best billfish fishing years in southern California are hard to compare with the CPUEs reported from the warmer waters off Hawaii and Baja. During 2011, Survey respondents reported relatively good fishing around the Hawaiian Islands (CPUE of 0.43). However, the fishing success during 2011 was short lived as 2012 results (0.39) were well below the annual average (0.42) for the five most recent years. Conversely, 2012 was a good year by Baja's standards where anglers caught 0.82 billfish per fishing day. This was the sixth highest CPUE reported from Baja dating back to 1984. The fishing success off Baja during 2012 must have been a relief as reports indicated that 2011 was a slow year. During 2011, anglers off Baja caught 0.68 billfish per day.

PACIFIC BLUE MARLIN

Blue marlin are tropical and sub-tropical in distribution and continue to be the most common species encountered by billfish anglers in Hawaii as well as the central and western Pacific island nations. Hawaii, Tahiti, and Baja California, Mexico are three fishing destinations where anglers have historically reported success targeting blue marlin (**Figure 1A**). There were a number of similarities in the results from Tahiti and Hawaii. The blue marlin CPUE off both Hawaii and Tahiti increased in 2011 and decreased in 2012. At both locations, a negative trending CPUE has occurred over the last five years. However, the long-term trend differs. Over the last 20 years, the blue CPUE off Hawaii has trended upward. In contrast, the 20-year trend indicates fishing success has gone down off Tahiti. The last two annual CPUEs reported from Tahiti have been particularly low; the CPUE was 0.16 in 2011 and 0.12 in 2012.

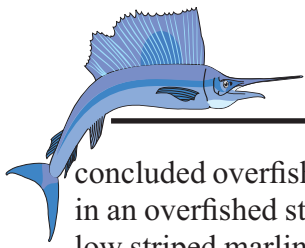
In the eastern Pacific, Survey anglers reported 0.03 CPUE off Baja California, Mexico during 2011. This was below the Baja average annual CPUE (0.07), below the prior five year average (0.06, 2006-2010), and the lowest blue CPUE reported from this area since 1981. Fortunately, the 2012 CPUE (0.05) was an improvement from the previous year. We hope that the blue marlin continue to show up in greater numbers in the coming years.

Table 1. Catch and effort reported for the 2011 and 2012 International Billfish Angler Survey. Numbers indicate total days fished by location, number of billfish caught, and the catch-per-fishing day. The most predominant species caught by area is also listed: striped marlin (SM); blue marlin (BM); black marlin (BK); and sailfish (SF).

LOCATION	ANGLER FISHING DAYS	NUMBER OF BILLFISH	BILLFISH PER FISHING DAY (CPUE)	MAJOR SPECIES
Pacific Ocean				
Hawaii	3,539	1,466	0.41	BM
Southern California	1,186	31	0.03	SM
Baja California	915	676	0.74	SM
Tahiti	230	45	0.20	BM
Australia	209	137	0.66	BK
Panama	135	82	0.61	BK
Acapulco/Ixtapa/Zihuatanejo/Guerrero	107	82	0.77	SF
Fiji	87	12	0.14	BM
Costa Rica	66	132	2.00	SF
Manzanillo/Colima	60	30	0.50	SM
Japan	50	18	0.36	BM
Malaysia	49	284	5.80	SF
New Zealand	42	11	0.26	SM
Puerto Vallarta	38	23	0.61	SF
Huatulco/Puerto Escondido/Oaxaca	36	3	0.08	BM/SF
Guatemala	21	54	2.57	SF
Guaymas/Sonora	15	1	0.07	BM
Mazatlan/Sinaloa	14	15	1.07	SF
Galapagos Islands	6	5	0.83	SM
El Salvador	4	10	2.50	SF
Guam	4	0	0.00	-
Midway Island	2	0	0.00	-
Kiribati	2	0	0.00	-
PACIFIC TOTAL	6,817	3,117	0.46	BM
Indian Ocean				
Mauritius Island	12	0	0.00	-
Dubai/United Arab Emirates	11	10	0.91	BM
Kenya	6	15	2.50	SF
INDIAN TOTAL	29	25	0.86	SF
Atlantic Ocean				
Gulf of Mexico	39	6	0.15	SF
Cape Verde Island	30	45	1.50	BM
Florida	16	7	0.44	SF
Miami or Keys	13	4	0.31	SF
Portugal	8	1	0.13	BM
St. Thomas	8	6	0.75	BM
Dakar/Senegal	7	2	0.29	BM
Bahamas	6	6	1.00	BM/SF
Cancun/Isla Mujeres/Yucatan	4	5	1.25	SF
Bermuda	4	2	0.50	BM
Azores off Morocco	3	4	1.33	BM
Honduras	2	1	0.50	SM
Hudson Canyon	1	0	0.00	-
Madeira Island	1	0	0.00	-
ATLANTIC TOTAL	142	89	0.63	BM
TOTAL	6,988	3,231	0.46	

STRIPED MARLIN

Striped marlin is the most common billfish species encountered by anglers off southern California, northern Mexico, and New Zealand. In 2012, the International Scientific Committee (ISC) completed an assessment of north Pacific striped marlin and



concluded overfishing was occurring and the stock was in an overfished status. Indeed, anglers have indicated low striped marlin catch per fishing day in recent years at some of the north Pacific locations that we highlight in the Newsletter (**Figure 1B**).

After a historically low CPUE was reported off southern California in 2010 (0.03), the striped marlin CPUE decreased even further in 2011 (0.02). A marginal improvement in the catch per effort (0.03) occurred in 2012, but this CPUE was still very low in comparison to previous years. Off Hawaii, the striped marlin results have also been relatively poor in recent years. In fact, the striped marlin CPUE from Hawaii has trended down over the last ten years. During this time, anglers reported a decline in striped marlin CPUE for six consecutive years (2005-2010). Fortunately, the 2011 CPUE (0.07) was an increase from 2010 and greater than the previous five year annual average (2006-2010; 0.05).

Off Mexico, the recent CPUE trend has been positive and Survey respondents have reported some success. After a relatively low CPUE was reported during 2010, the annual striped marlin CPUE off Mexico increased in 2011 and 2012. In 2011, anglers caught 0.45 striped marlin per fishing day, and in 2012, 0.55 stripers were caught per fishing day. The 2012 CPUE was influenced by reports from the Baja peninsula, which according to our Survey respondents has traditionally been a popular destination for striped marlin. As recent as 2007, the striped marlin catch off Baja was as high as 1.7 per angler fishing day! In 2012, the striped CPUE off Baja was 0.69, which was an improvement from 2011 (0.54) and above the average annual CPUE (0.60). Striped marlin were also caught during 2011 and 2012 from off the Galapagos Islands, Guatemala, Costa Rica, Honduras, Tahiti, Australia, New Zealand, and Kenya.

SAILFISH

Sailfish prefer tropical habitat and are abundant in eastern Pacific coastal and offshore waters from Mexico to Ecuador. In comparison to previous years, recent sailfish CPUEs were down at each of the three highlighted eastern Pacific sailfish destinations (**Figure 1C**). Throughout Mexico, anglers reported 0.18 sailfish per day in 2011, which was the second lowest CPUE in a decade. In 2012, anglers caught 0.15 sails per day, which was the lowest CPUE reported from the

area in over 20 years. Within the country, the sailfish catch per day is usually best in the warmer waters to the south. Delving into the reports, we found that the sailfish CPUE off central and southern Mexico (south of Mazatlan and Baja California; 22.5° N latitude) was indeed higher; 0.50 in 2011 and 0.36 in 2012. Compared to the overall (Mexico) CPUE, these values appeared to be relatively good. However, in comparison to previous results from this area, the 2011 and 2012 CPUEs were low. The average annual sailfish CPUE is 0.87. Anecdotal reports during 2013 suggested that the sailfish were back in good numbers at some of the popular locations off central Mexico. Look out for next year's Newsletter to see if Survey results show a positive change in the trend.

Survey respondents also reported little success off Panama. In the two most recent years (2011-2012), anglers consecutively reported the lowest sailfish CPUE on record for this location. Moreover, CPUE has been declining in this location over the last ten years. Similarly, CPUE off Costa Rica has also declined in recent years. In 2011, anglers caught 1.87 sailfish per fishing day and in 2012, the CPUE dropped to 1.64. These CPUEs were good in comparison to most other locations; however, compared to Costa Rica's most recent five year average (2006-2010; 2.24 CPUE), 2011 and 2012 were relatively slow years.

Fortunately, there were highlights to pass on from the sailfish fishing responses. In 2011, an angler reported 16 fishing days off Malaysia and caught 4.13 sailfish per day. The same angler returned to Malaysia in 2012 and caught 218 sailfish during 33 days of fishing, a CPUE of over 6 fish per day! Unfortunately, we did not receive other reports from Malaysia. It would be interesting to see how this angler's success compares with others that have fished in the area.

BLACK MARLIN

Black marlin are typically found in tropical and subtropical waters and occasionally frequent temperate areas. According to Survey respondents, at most locations black marlin are caught in fewer numbers (per day) than other billfish species. The exception is Australia where Survey anglers usually report more black marlin caught (per day) than other billfish species. In addition, Australia usually has the highest black marlin CPUE amongst locations, as was the case during

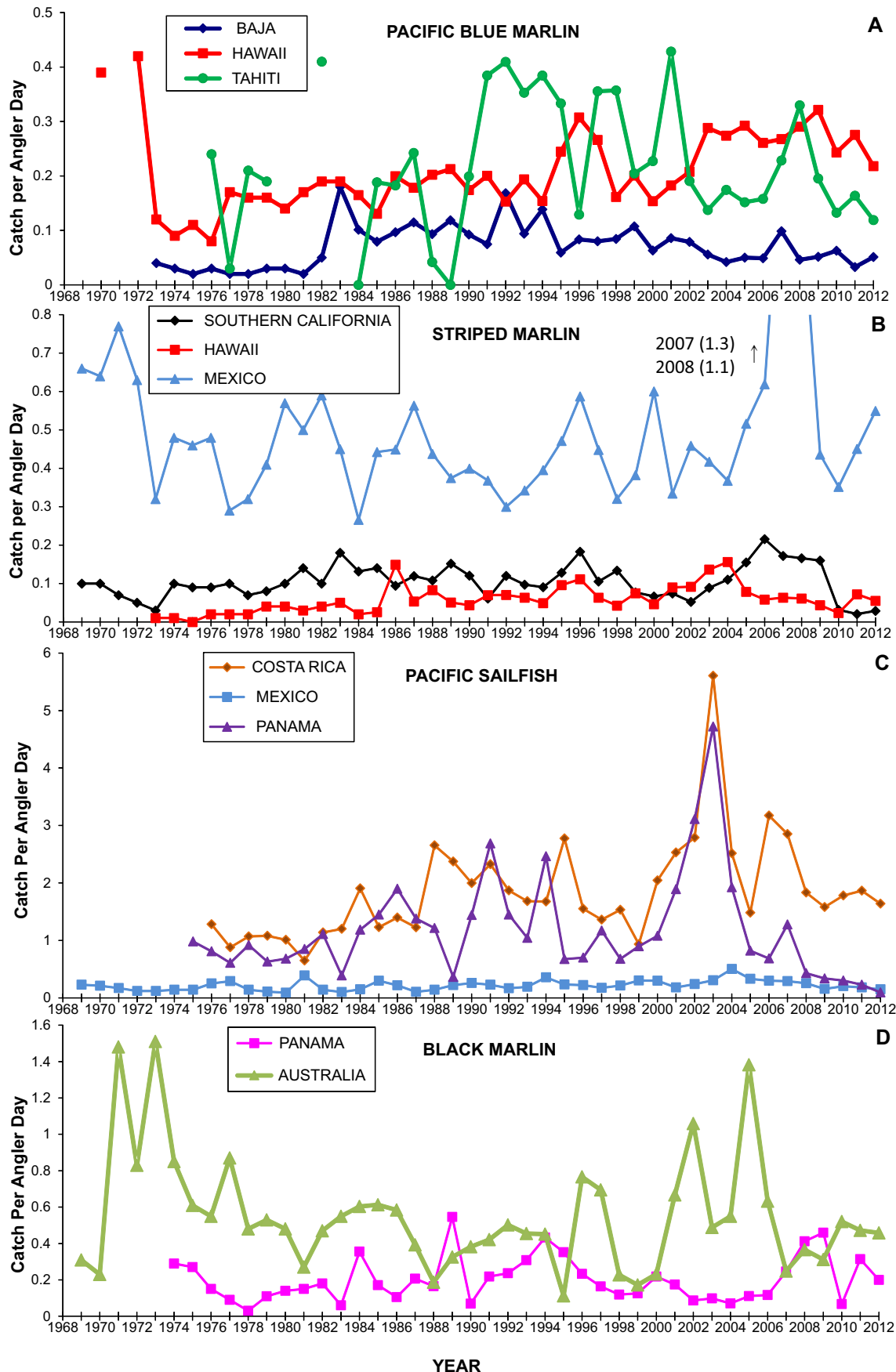
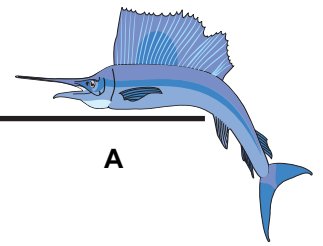
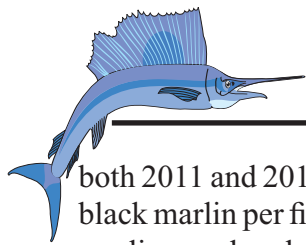


Figure 1. Catch-per-unit-effort (CPUE) in number of fish per angler fishing day reported by region from 1969-2012 for Pacific blue marlin (A), striped marlin (B), Pacific sailfish (C), and black marlin (D).



both 2011 and 2012. Survey respondents reported 0.47 black marlin per fishing day during 2011 and 0.46 black marlin per day during 2012 (**Figure 1D**). The results from both 2011 and 2012 were lower than Australia's annual average (0.55); however, these CPUEs were each higher than the recent five year average (0.42; 2006-2010).

Off the coast of Panama, the black marlin CPUEs during 2011 and 2012 were also greater than the CPUEs reported for other billfish species caught at this location. In 2011, a black marlin CPUE of 0.31 was particularly good news after reports indicated slow fishing the previous year. The 2012 CPUE was lower than 2011, but anglers still caught enough fish per day to match the overall annual average (0.20). Survey respondents also reported black marlin catch from other locations including Baja California, Mexico, Costa Rica, and Hawaii.

SHORTBILL SPEARFISH

The shortbill spearfish is an oceanic species with a distribution across tropical and temperate Pacific Ocean waters with limited abundance near Hawaii, Central America, Mexico, and the west coast of the United States. Shortbills are also infrequently encountered in the Atlantic Ocean, but it is thought that the primary populations and spawning grounds are within the Pacific and Indian Oceans. Historically, most shortbill catch reported by Survey anglers has been off the coast of Hawaii. The Hawaii annual average shortbill CPUE is 0.08, and the recent five-year average is 0.09 (2006-2010). In 2011 and 2012, anglers reported CPUEs of 0.08 and 0.10, respectively, consistent with most reporting years. Shortbill spearfish were only caught at one other location, Tahiti, in 2011. In 2012, shortbill catch was reported at three locations including Dubai (0.18 CPUE), Australia (0.01 CPUE), and Japan (0.03 CPUE).

BROADBILL SWORDFISH

Fishing for swordfish differs from other billfishing in that the fish are generally targeted at night. Broadbill swordfish are a commercially important fish but historically have not been taken in high numbers by recreational anglers in the Pacific. Even so, some recreational anglers responded to the 2011 International Billfish Angler Survey with swordfish catch off New

Zealand (CPUE of 0.08), Baja California (0.01), and Hawaii (0.01). In 2012, anglers reported swordfish catch off Mexico (0.04), Panama (0.02), Japan (0.03), and Hawaii (0.01).



High Flying! This blue marlin was tagged off Kona, HI aboard the Marlin Magic 2 with Captain Marlin Parker. Photo by Keith Robinson.

THE BILLFISH TAGGING PROGRAM

The SWFSC's angler-based Billfish Tagging Program began in 1963 and has provided tagging supplies to billfish anglers for 51 continuous years. Tag release and recapture data are used to determine movement and migration patterns, species distribution, and age and growth. This volunteer tagging program depends on the participation and cooperation of recreational captains and anglers, sportfishing organizations, and commercial fishers. In collaboration with California Department of Fish and Wildlife, over 77,000 fish have been tagged and released (**Table 2**). Our emphasis continues to focus on the skillful tagging of all billfish in the Pacific and Indian Oceans. Other species tagged over the years through various collaborations and independent research efforts are also reported to the Billfish Tagging Program as both general interest and so that anglers will know to look out for tags on a number of different species. While we consider tag-and-release vital for conservation, we do not encourage the use of our billfish tags for non-billfish. **We encourage all anglers to tag and release live billfish. If you would like to participate in our tagging program, please let us know and we will send you tags!**

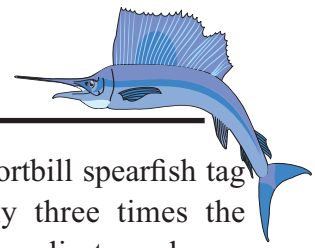


Table 2. Summary of all fish tagged during 2011 and 2012 with releases and recoveries for the period 1963 through 2012. The pelagic sharks and albacore were tagged during NOAA/SWFSC research operations.

SPECIES NAME	RELEASE 2011	RELEASE 2012	RELEASE TOTAL	RETURN TOTAL	RETURN RATE (%)
Striped Marlin	178	123	23,235	348	1.5
Pacific Blue Marlin	608	328	11,718	94	0.8
Blue Shark	301	225	9,834	193	2.0
Sailfish	21	67	9,292	49	0.5
Shortfin Mako Shark	64	253	5,739	338	5.9
Billfish, unidentified	0	0	4,386	6	0.1
Black Marlin	3	0	3,392	69	2.0
All Others	4	6	2,803	125	4.5
Shortbill Spearfish	92	57	2,294	3	0.1
Common Thresher Shark	407	265	2,137	98	4.6
Albacore Tuna	90	81	930	30	3.2
Broadbill Swordfish	1	0	522	17	3.3
Yellowfin Tuna	0	0	349	25	7.2
Leopard Shark	1	1	225	12	5.3
Skipjack Tuna	0	0	100	2	2.0
Bigeye Tuna	0	0	79	2	2.5
Basking Shark	0	0	65	0	0.0
Hammerhead Shark	0	0	62	2	3.2
Bluefin Tuna	0	0	58	8	13.8
Bronze Whaler Shark	0	0	52	3	5.8
Whitetip Shark	0	0	44	1	2.3
Atlantic Blue Marlin	0	0	43	0	0.0
Soupfin Shark	0	1	41	1	2.4
Salmon Shark	0	0	36	3	8.3
Silky Shark	0	0	24	1	4.2
Other Tunas	0	0	21	1	4.8
White Marlin	0	0	13	1	7.7
Longbill Spearfish	0	0	3	0	0.0
TOTAL	1,769	1,407	77,497	1,432	1.8

We thank everyone who contributed to the tagging efforts during the 2011 and 2012 calendar years. We are pleased to report that during this time, over 1,400 tags were released on billfish at locations throughout the Pacific Ocean. The number of billfish tagged and released during 2011 was more than twice the number of tags released in 2010! In fact, nearly all billfish species were tagged in greater numbers during 2011 compared to the previous year. The most substantial difference was a three-fold increase in the number of striped marlin tagged and released. Given the declining population trend detected in the 2012 North Pacific striped marlin stock assessment, the trends in tag and release show important efforts toward conservation. Moreover, given the downward trend in striped marlin catch per unit effort reported by Survey respondents in many areas, an increase in tag releases of this

magnitude is very impressive. Shortbill spearfish tag releases in 2011 increased nearly three times the amount of 2010, and Pacific blue marlin tag releases were almost doubled.

Sailfish was the only billfish species tagged in fewer numbers during 2011 when compared to the previous year. In fact, the number of tagged sailfish was declining for several years until 2012. This was the tagging highlight species of 2012 as the number increased by over three-fold between 2011 and 2012. The focus of this effort was centered along the central coast of Mexico. We have been working with a good group of anglers who know the area and are dedicated to improving our tagging results. We are hopeful that these efforts will continue to improve collection of these important data and promote ethical angling in the area.

The tagging effort during 2011 and 2012, by area, for all billfish tagged can be seen in **Table 3**. Most billfish were tagged and released in U.S. or Mexican waters; however, billfish were also tagged and released by anglers in many locations across the Pacific. A total of 1,276 tags were deployed on billfish off Hawaii, representing over 85 percent of the total tagging effort. The majority of these tags were released on blue marlin. A total of 903 blue marlin were tagged off Hawaii, which equated to 71 percent of the tags released at this location. In 2011, several species were tagged in greater numbers compared to the previous year; a prime example of this was the striped marlin. In 2010, striped marlin accounted for only 2 percent (8 tags) of the tagged fish out of Hawaii. However, in 2011, 154 striped marlin were tagged, accounting for 18 percent of the Hawaiian total. Indeed, there are many factors that can account for the increase in striped marlin tag releases between 2010 and 2011, but it is interesting that this correlated with Survey respondent's reports of an increase in striped marlin CPUE off Hawaii. The striped marlin CPUE reported off Hawaii in 2010 was the lowest value in over 25 years, while 2011 was an above average year. Similarly, the 2012 striped marlin CPUE reported off Hawaii in 2012 dipped slightly from the previous year as did the percentage of Hawaii tags released on this species (15 percent).

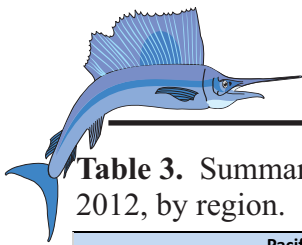


Table 3. Summary of billfish tagged during 2011 and 2012, by region.

Pacific Ocean		2011	2012
Southern California	Striped Marlin	0	4
Baja California / Baja California Sur	Striped Marlin	15	53
	Pacific Blue Marlin	1	0
	Sailfish	1	1
Guaymas, Sonora	Striped Marlin	1	0
Puerto Vallarta, Jalisco	Pacific Blue Marlin	1	0
	Striped Marlin	1	1
Manzanillo, Colima	Striped Marlin	2	0
	Sailfish	1	0
Acapulco - Ixtapa - Zihuatanejo, Guerrero	Sailfish	12	60
	Pacific Blue Marlin	0	1
Huatulco, Oaxaca	Striped Marlin	5	0
	Pacific Blue Marlin	2	0
	Sailfish	1	0
Costa Rica	Sailfish	3	0
Hawaii	Pacific Blue Marlin	596	307
	Striped Marlin	154	62
	Shortbill Spearfish	92	56
	Black Marlin	3	0
	Broadbill Swordfish	1	0
	Sailfish	1	0
Tahiti	Pacific Blue Marlin	4	4
Samoa	Pacific Blue Marlin	0	4
	Striped Marlin	0	3
Tonga	Pacific Blue Marlin	0	3
	Sailfish	0	1
Fiji	Sailfish	2	2
	Pacific Blue Marlin	0	1
Japan	Pacific Blue Marlin	1	0
Unknown Location	Pacific Blue Marlin	3	8
	Shortbill Spearfish	0	1
	Sailfish	0	3
TOTAL		903	575

During 2011, all tagging in the eastern Pacific was done south of the U.S. border. There have been several consecutive years of slow marlin fishing off southern California as indicated by Survey results. Coincidentally, there have been only five billfish tag releases off the California coast since the beginning of 2010. To the south, a total of 43 and 116 tags were released off Mexico in 2011 and 2012, respectively. The tip of Baja, including the fishing towns of Cabo San Lucas, Los Cabos, and La Paz, has historically been considered a hotspot for catching several billfish species, and in 2011 most of the Mexico tagging effort was concentrated in this area. However, more tags were released off the state of Guerrero in 2012. Most of the recent effort from this state has been the work of captains and anglers fishing from the port of Zihuatanejo. During these two years, the majority of tags released off Baja were on striped marlin (68) and the majority of tags released off Guerrero were on sailfish (72). Several species including blue marlin, sailfish, black marlin, and striped marlin were also tagged elsewhere in Mexico including Guaymas,

Puerto Vallarta, Manzanillo, Acapulco, and Huatulco. Keep an eye out in future Newsletters for even better results as our anglers are working to improve tagging efforts in this part of Mexico.

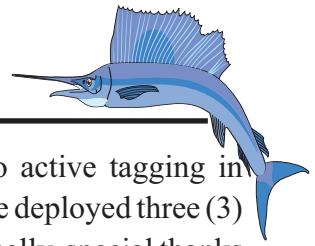
Thanks to everyone for contributing to the tagging program and practicing good angling ethics. In particular, thanks to our anglers tagging from far reaching areas including Costa Rica, Tahiti, Tonga, Samoa, Fiji, and Japan!

TOP ANGLERS AND CAPTAINS ACKNOWLEDGEMENT

We appreciate the cooperation of anglers and captains who tag and release billfish. The tagging effort during 2011 and 2012 was a result of contributions from many people. A total of 1,100 anglers released a billfish tag during this time. Individual recognition of the 71 anglers who reported three (3) or more billfish tag releases is presented in **Table 4**. Carol Herren

Table 4. Names of anglers tagging three or more billfish during 2011 and 2012, by area.

ANGLER NAME	BILLFISH TAGGED	ANGLER NAME	BILLFISH TAGGED
Baja California / Baja California Sur		Hawaii (cont)	
ANN THOMPSON	11	CLAY LAWRENCE	6
MARIE BOWMAN	9	DAVID ITANO	6
JOHN MCVEY	5	JANET B. MARTIC	6
DAN MUSLIN	5	DONALD BRANDT	5
DAVID JOHNSTON	4	JOHN C. HURLBUT	5
RANDY RIES	4	ROBERT BLOSS	5
MARK BOWMAN	4	MIKE MACEVITT	5
YARON TELEM	3	JOHN PATTERSON	5
LLUUIA OCAMPO	3	DAVID KEINATH	5
TIM MOYER	3	JIM ROBINSON	5
Acapulco - Ixtapa - Zihuatanejo, Guerrero		KENNETH R. CORDAY	4
MIKKEL N. CHRISTIANSEN	8	GREGORY "STRETCH" M. FOGARTY	4
CHARLES STIRLING	6	BRENT POLLOCK	4
NORMAN COOK	5	HEATHER MASUNAGA	4
RON HUBBARD	5	RON GILSON	4
DAN FROESE	4	RICK GAY	4
DORRIS ALEXANDER	4	PAT BRIAN	4
FLEMMING KJELDSEN	4	WESLEY BELDEN	3
STEVE SPALDING	3	TREVOR WOOLSTON	3
Huatulco, Oaxaca		STEVE DEBOER	3
CHAD WILLDEN	7	ROBERT HYTNER	3
Costa Rica		CRAIG LINDNER	3
CHAD WILLDEN	3	MATT DYER	3
Hawaii		JIM ROBINSON	3
CAROL HERREN	42	KEITH G. HOLLINGWORTH	3
CHARLES HELSCEL	10	CARLOS ORTEGA	3
BRIDGET HURLBUT	9	DENNIS FROST	3
STEVE SPINA	9	CHRIS GAMROT	3
JACK SANFORD	8	HIROSHI KOYAMA	3
JOHN BOWERS, "BO"	7	ERIC CIOFFI	3
MIKE JACOBSEN	7	J. GARY ROBB	3
MIKE GLIMPSE	7	HENRY HOSTELLEY	3
RANDY WEIH	6	BILL INGRAM	3
LUKAS FOLK	6	BRINSON HOLDER	3
ANGELO J. ROSSI	6	BRUCE LEE	3
BRENT NELSON	6	LINDA LANTERMAN	3
MICHAEL C. CORBINO	6	Tahiti	
MELANIE HUTCHINSON	6	FRANCIS BLAIS	4



deployed more billfish tags than any other tagger by releasing a total of 42 tags off Hawaii on a combination of species including blue marlin, shortbill spearfish, and striped marlin. The 2010 top angler, Steve Spina, made another great contribution by releasing nine (9) tags off Hawaii. Also tagging off Hawaii, Charles Helscel and Bridget Hurlbut deserve recognition for tagging nine (9) or more billfish. Many anglers were also actively tagging off the coast of Mexico during 2011. Most notably, Ann Thompson tagged eleven (11) fish off Baja California. Chad Willden tagged seven (7)

fish out of Huatulco and was also active tagging in other parts of the eastern Pacific. He deployed three (3) tags off the coast of Costa Rica. Finally, special thanks to Francis Blais for his tagging efforts off Tahiti and deploying four (4) tags during 2011 and 2012.

Table 5. Names of captains tagging three or more billfish during 2011 and 2012, by area.

CAPTAIN	BILLFISH TAGGED	CAPTAIN	BILLFISH TAGGED
Baja California / Baja California Sur		Hawaii (cont)	
DAN MUSLIN	29	ROB ELLYN	13
MIKE SHROSBREE	16	JASON HOLTZ	12
RICHARD HAMILTON	11	TIM PUTNAM	10
JOSEPH (GREG) ZUCCHERO	9	JEFF METZLER	10
LUIS ABAROA	4	RYAN FIEDOROWICZ	10
Acapulco - Ixtapa - Zihuatanejo, Guerrero		ROBERT MCGUCKIN	10
SANTIAGO VALDOVINOS	27	GUY TERWILLIGER	9
ADAN VALDOVINOS OLEA	26	B.C. CRAWFORD	9
ARMANDO ARCINIEGA	10	SHAWN BEBEAU	9
JOSE VASQUEZ	3	BRIAN WARGO	9
Huatulco, Oaxaca		CHARLES HAUPERT	9
RICHARD HAMILTON	8	LOYD "RENEGADE" POTTER	8
Costa Rica		STEVEN R. FASSBENDER	8
RICHARD HAMILTON	3	MARK SHULTZ	8
Hawaii		BRANDON MCKINLEY	7
KEN FOGARTY	84	DOUG LANTERMAN	7
MARLIN PARKER	60	CRAIG SCHULER	7
STEVE EPSTEIN	54	DAVE BENSKO	6
JOHN BAGWELL	54	DON STUTHEIT	6
JEFFREY FAY	52	STEVEN D. KAISER	5
CHUCK WIGZELL	45	BRAD COOMBS	5
KEVIN HIBBARD	40	ED VAN CLEAVE	5
MCGREW RICE	39	JOHN R. WILSON	4
BOB SYLVA JR.	38	CARL SHEPARD	4
KENT MONGREIG	38	GENE PERKINS JR.	4
CHUCK WILSON	38	GUS SELLERS	4
SCOTT M. FULLER	34	SETH KIZEL	4
TEDDY HOOGS	34	JIM PATTERSON	4
TIM HICKS	30	JOHN JORDAN	4
DAVID CRAWFORD	27	DAVE BERTULEIT	4
TOM CASEY	23	JIM WIGZELL	3
DENNIS CINTAS	22	TIO KEARNEY	3
BRUCE HERREN	20	ROBERT BATTERSBY	3
KERWIN MASUNAGA	20	BILL JARDINE	3
STEVE CARROLL	17	KIM HOLLAND	3
NEAL ISAACS	17	RON BURAGLIA	3
KEVIN M. HOGAN	16	DOUG PATTENGILL	3
JAMES DEAN	16	SCOTT CRAMPTON	3
MIKE DEREGO	16	GABE HEFLIN	3
MIKE TAPPERO	16	Tahiti	
BRIAN (CHIP) VAN MOLS	15	JOEL ALLAIN	8
GREG FRANCE	14	Samoa	
DAVID ITANO	14	ANDY WEARING	7
JEFF KAHL	14	Tonga	
WILLIAM LAZENBY	14	DEAN HORGAN	4
RANDY LLANES	14	Fiji	
BILL CASEY	13	PATRICK TODD	4
ROBERT HUDSON	13		

Charter and private boat captains who support billfish tag and release (and catch and release) play an important role by supporting ethical angling and conservation stewardship of the marine environment. They set an example by demonstrating skillful release of their billfish catch. A total of 162 captains reported tag and release of billfish with their anglers and clients. We gratefully acknowledge those 87 captains who assisted with tagging three (3) or more billfish in specific regions (**Table 5**). A total of 45 captains helped tag ten (10) or more billfish during 2011 and 2012. Most of these captains were tagging off of the coast of Hawaii. Ken Fogarty was the top captain; with his clients they tagged 84 billfish! Marlin Parker, Steve Epstein, John Bagwell, Jeffrey Fay, and Chuck Wigzell all tagged over 40 billfish. Many of the captains leading the charge out of Hawaii have been contributing to the tagging program for many years. During this time, many of them have contributed to the tag and release of several hundred billfish. Peter Hoogs is one of two captains who have tagged more than 500 billfish (**Table 6**). Many captains have also been

Table 6. Names of captains that have tagged more than 300 billfish through the SWFSC Billfish Tagging Program.

CAPTAIN	TOTAL BILLFISH TAGGED
PETER HOOGS	513
JOHN BAGWELL	505
JESUS ARAIZA RUIZ	469
MCGREW RICE	389
GUY TERWILLIGER	382
MARK SHULTZ	377
MARLIN PARKER	370
DENNIS CINTAS	341
JEFFREY FAY	341
JESUS ARAIZA JR.	322



actively tagging off of the coast of Mexico. The top tagging captain out of Mexico was Dan Muslin, with 29 tags off Baja. Other notable captains tagging off Mexico with 15 or more billfish releases included Santiago Valdovinos, Adan Valdovinos Olea, Richard Hamilton, and Mike Shrosbree. Captains Santiago Valdovinos and Adan Valdovinos Olea have been leading the surge in sailfish tagging off the coast of Zihuatanejo, while Mike Shrosbree concentrated most of his efforts in the northern half of the country, around Baja. Richard Hamilton tagged a total of 26 fish between southern California and Costa Rica. Finally, special recognition goes out to captains Joel Allain, Andy Wearing, and Dean Horgan for supporting the tagging program from Tahiti, Samoa, and Tonga. Continued interest and cooperation by all captains has greatly enhanced the Billfish Tagging Program, and your efforts and conservation ethic are truly appreciated. These efforts are a critical component of sustainable billfish angling.

It is important that all Billfish Tagging Program report cards be sent in as soon after tagging as possible. **Please ensure that all fields are filled out when returning tag cards.** This would be a great time to check your tackle boxes and make sure that all Billfish Tagging Program report cards have been sent to our office.

TAG RECOVERIES

Tag recoveries are a vital part of the Tagging Program because they allow us to track movements of highly migratory billfish species and monitor growth and

mortality rates. In past years, as many as 27 recoveries have been recorded in a single year. Twice during the 1990s over 20 tags were recovered and reported. However, in recent years those numbers have significantly dropped and the average number of recoveries over the last ten years is less than six per year. We encourage all anglers to report tag recoveries, including those that are re-released with or without new tags.

A total of eight recoveries were reported during 2011 and 2012. Five recoveries were reported in 2011, including three Pacific blue marlin and two striped marlin (**Table 7**). These blue marlin were both released and recaptured in relatively close proximity to the Hawaiian Islands. Bob Cherry recaptured a blue marlin shortly after he tagged and released the same fish. The other two blue marlin recaptures are interesting because they were both tagged off Kona during mid-July of different years and recaptured off Honolulu during mid-September of 2011. It is also worth noting that these two fish were tagged by two of our most active captains, Jeffrey Fay and McGrew Rice. The captains that are putting the time and effort into the tagging process are producing valuable results for everyone.

The two striped marlin recaptures were after a relatively short time at liberty (< 5 months), but the distances traveled for each of these fish were greater than 500 nautical miles. One of the striped marlin was tagged off Maui and after 130 days was recaptured 573

TAGGER/ CAPTAIN	RELEASE DATE	RELEASE LOCATION	RECOVERY DATE ANGLER	RECOVERY LOCATION	DAYS FREE	NAUTICAL MILES - DIRECTION TRAVELED
Pacific Blue Marlin						
Bobby Cherry/ Bobby Cherry	2/22/2011	19° 35' N 156° 9' W Hawaii	2/22/2011 Bob Cherry	19° 35' N 156° 9' W Hawaii	<1	0
Dan Brown/ Jeffrey Fay	7/15/2009	19° 30' N 156° W Hawaii	9/11/2011 Tony Brown	21° 24' N 158° 15' W Hawaii	789	170 - NW
Charles Helscel/ McGrew Rice	7/16/2011	19° 30' N 156° W Hawaii	9/21/2011 Allen Nikata	21° 24' N 158° 15' W Hawaii	68	170 - NW
Lukas Folk/ Steve Epstein	7/7/2011	20° N 156° W Hawaii	1/4/2012 Andres Paz	20° 10' N 113° 15' W Mexico	182	2390 - W
Striped Marlin						
Sean Pavlich (angler)	11/7/2010	24° 20' N 112° 10' W Baja California, MX	2/10/2011 Tom Adamo	17° 20' N 101° 30' W Zihuatenejo, MX	97	731 - SE
Nathan Millar/ Mike Tappero	2/25/2011	20° 41' N 156° 43' W Hawaii	7/4/2011 Hiep Tran	29° 57' N 159° 14' W Central Pacific	130	573 - NW
Unknown	Unknown	Unknown	2/20/2012 Greg Bary	24° 39' N 160° 57' W Hawaii	N/A	N/A
Shortbill Spearfish						
Adrian Ballintine/ Jeffrey Fay	1/20/2012	19° 30' N 156° W Hawaii	2/15/2012 Samuel Miele	26° 22' N 158° 52' W Hawaii	17	441 - NW

Table 7. Tag recovery information for 2011 and 2012.



nautical miles north of the Big Island. The other striped marlin was tagged off Baja California, Mexico and after 97 days was recaptured to the southwest of the fishing town of Zihuatanejo. This fish traveled a minimum 7.6 nautical miles per day during its time at liberty.

Three tag recaptures were reported during 2012, each a different species. A striped marlin was recaptured by Greg Bary off of Hawaii in February. We have not received the release information for this fish but do know that the tag card was sent in a batch to Hawaii and was most likely released around the islands. A tagged shortbill was also recaptured off Hawaii in February by angler Samuel Miele. This fish was out for 26 days after a release. The big story was a blue marlin that was recaptured after 6 months at liberty and traveled over 2,000 nautical miles from Hawaii to Mexico. Indeed, our tagging program has revealed that these highly migratory fish have the ability to travel thousands of miles. **Table 8** provides the maximum net distance and time at liberty for billfish and other common large pelagic species tagged through our program. However,

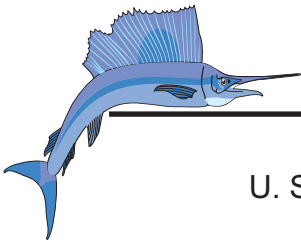
similar to most of the recoveries highlighted in this Newsletter, many of the tag recoveries reported throughout the history of the tagging program have been short distances from their release locations even after a considerable amount of time at liberty.

Table 8. Maximum net distance traveled (maximum movement) and longest time at liberty (maximum liberty) for billfish, tunas, and pelagic sharks tagged in conjunction with the Billfish Tagging Program and other NOAA/SWFSC research programs, 1963-2012.

SPECIES	MAXIMUM LIBERTY (Days)	MAXIMUM MOVEMENT (nmi)
Black Marlin	1,454	5,763
Bluefin Tuna	1,829	5,116
Pacific Blue Marlin	1,503	4,450
Albacore Tuna	753	4,223
Blue Shark	1,415	3,982
Striped Marlin	3,531	3,693
Shortfin Mako Shark	1,938	3,597
Broadbill Swordfish	1,681	2,573
Sailfish	1,717	932
Yellowfin Tuna	324	850
Skipjack Tuna	290	575
Silky Shark	175	447
Shortbill Spearfish	34	441
Common Thresher Shark	1,389	426
Salmon Shark	1,547	285



Sailfish caught and released off southern Florida. Photo by David Cartee.



U. S. BILLFISH TAGGING EFFORTS IN THE WESTERN ATLANTIC REVEAL DETAILS OF SAILFISH MOVEMENTS

As early as 1653, ribbons tied to the tails of Atlantic salmon (*Salmo salar*) were used as “tags” to demonstrate the return of adult salmon to their natal rivers to breed. Fish tagging has advanced since those first experiments, and the first practical dart tag for billfishes and other large pelagic fish was designed by Frank Mather in the early 1950s¹. That early tag consisted of a stainless steel dart and an attached plastic streamer imprinted with a return address and serial number. The tags were anchored in the dorsal muscle by attaching the steel dart to an applicator pole and inserting it into the captured fish while they remained in the water alongside the vessel. Although individual components of the tag have been improved and refined over the years, the basic design is still roughly the same.

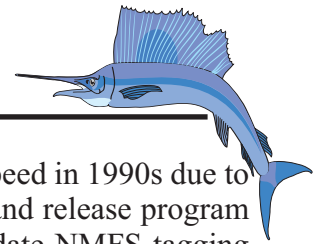
Mather used his tag design in a program operating out of Woods Hole Oceanographic Institute (WHOI) in Massachusetts (USA) targeting large tunas and billfishes in the western North Atlantic. Initially, the sailfish tagging effort was slow. In total, 1,305 sailfish were tagged and released between 1954 and 1960, and by the end of 1965 a total of 4,943 sailfish had been tagged and released. Of those, 42 were recovered along the southeast coast of Florida (USA). A few individuals moved between the Florida coast in the winter and the Gulf of Mexico in the summer.

The sailfish tagging effort in the western North Atlantic started gaining steam in the 1960s when WHOI researchers were joined by researchers and anglers of the Rosenstiel School of Marine and Atmospheric Sciences (Miami FL, USA) and the Port Aransas Rod and Reel Club (Texas, USA). By 1972, a total of 14,299 sailfish had been tagged and released with 109 tags recaptured (0.76%). Most of the recoveries demonstrated limited movement, showing no distinct migratory pattern, although there was some suggestion of seasonal movements. Times at-liberty ranged from one day to over four years. Although movement distances were typically short, one notable exception was an individual tagged off the eastern U.S. coast that traveled 3,070 km before being recaptured in northeastern South America waters (off the Guianas).

Concurrently, the National Marine Fisheries Service (NMFS) cooperative tagging program was releasing tags on sailfish. An additional 1,406 sailfish were tagged between 1975 and 1976, all along the coast of Florida as part of both the WHOI and NMFS tagging programs. Thirty tags were recovered during this period, including individuals tagged in previous years.

The NMFS cooperative tagging program continued efforts during 1976 and 1977, releasing 1,048 tagged sailfish, the majority concentrated off the coast of Florida. Of these, 20 were recaptured, raising this program's total recapture number to 197 sailfish. The most significant finding of these recaptures is evidence supporting earlier findings that suggested western North Atlantic sailfish migrate seasonally to seek out warmer waters. The prevailing belief at the time was that western Atlantic sailfish winter in the warm waters along the coast of Florida and Cuba, while in summer some move north along the eastern U.S. coast to the Carolinas, while others move into the Gulf of Mexico.

¹Mather, F.J. (1963) *International Commission for the Northwest Atlantic Fisheries Special Publication* 4: 288-293.



Once again, tagging efforts targeting billfish in the Atlantic Ocean began to pick up speed in 1990s due to two significant factors: 1) the establishment of The Billfish Foundation's (TBF) tag and release program (1990); and, 2) the formation of the Cooperative Tagging Center (CTC) to consolidate NMFS tagging operations for tuna and billfishes at the Miami office in 1992². The public awareness education put forth by these cooperative tagging programs resulted in greatly increased numbers of sailfish releases and recaptures. To date, TBF has recorded 29,825 tagged and released sailfish in the Atlantic, and 901 recaptures (3.02% recapture rate). The CTC has recorded 68,359 Atlantic sailfish releases (dating back to 1954), with 1,483 recaptures (2.16% recapture rate). Movement vectors for many of the CTC recaptures are shown in **Figure 2**. These vectors support the understanding that sailfish predominantly occupy coastal habitats, with no evidence for trans-Atlantic or trans-equatorial movements as has been observed in white marlin and blue marlin.

Also in the 1990s, new, miniature electronic tags that store temperature and depth information became available for studying the movements of fish in the water column. Using electronic tags, it has been shown that sailfish spend more of their time near the surface compared to other billfish species. In both the Atlantic and Pacific Oceans, sailfish spent 93% of nighttime, 86% of twilight, and 82% of daylight hours near the surface; in fact, less than 1% of time was spent in water temperatures that were colder than 8°C (14.5°F) below the surface temperature³. Generally speaking, sailfish prefer the warmest water available to them, which is one of the reasons they spend so much time near the surface. Essential physiological processes, including respiration and cardiac function, may be tuned to function best in temperatures and oxygen concentrations found near the surface⁴.

Notably, all of the tagging programs mentioned have relied on dedicated, recreational anglers who have volunteered their time and skills to participate in billfish tagging and conservation efforts. Without their help, these programs would not have achieved such success. This tagging research owes much to the diligent efforts of the recreational angling community to collect and return accurate tagging and recapture data.

²Orbesen, E. S. *et al.* (2008) *Marine Fisheries Review* **70**: 14-23.

³Hoolihan, J. P. *et al.* (2011) *Fisheries Oceanography* **20**: 192-205.

⁴Brill, R. W. and Lutcavage, M. (2001) *American Fisheries Society Symposium* **25**: 179-198.

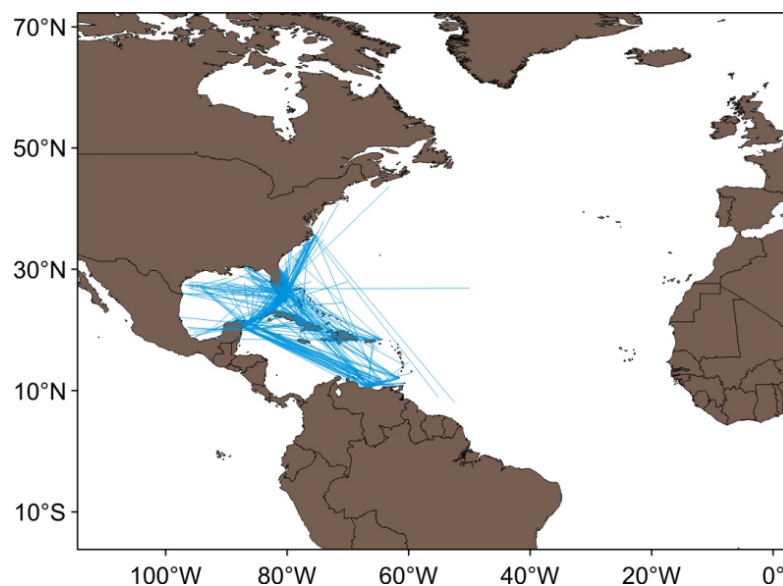
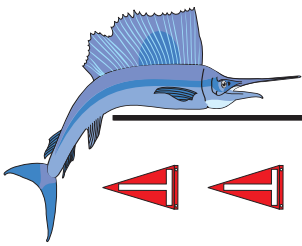


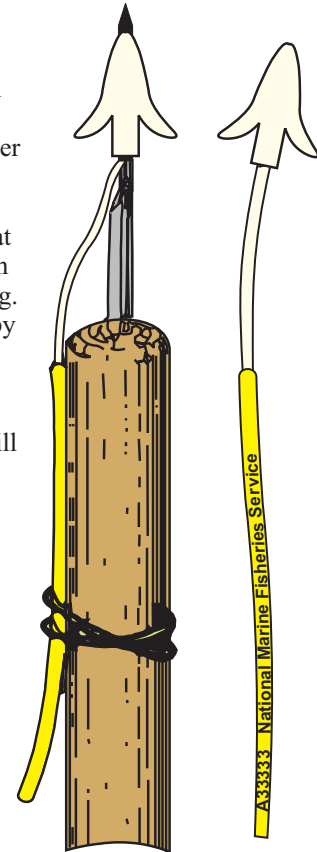
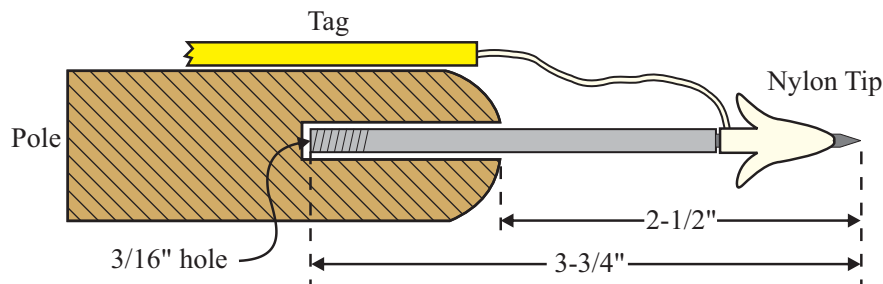
Figure 2. Release and recapture displacement vectors for Atlantic sailfish recorded by the National Marine Fisheries Service Cooperative Tagging Center's tagging program (from Orbesen, *et al.*, 2008).



CONSTRUCTING THE TAGGING POLE

It is important that the billfish tag be applied properly. Tag location, angle, and depth are critical to successful tagging. For striped marlin of 100 to 200 lbs, the tag should be inserted about 2.5 inches deep just below the tallest part of the dorsal fin. For larger fish, such as blue and black marlin, the tagging applicator pin may be 3.5 inches. Conversely, if you are tagging small, narrow fish like sailfish and shortbill spearfish, then it would be better to shorten the pin. Manufactured tagging poles are available at most retail sportfishing stores. It is important to check the length of the applicator pin installed on these poles to ensure the length of the tip matches the fish you are seeking. Some manufacturers produce tagging poles that have pin lengths that are adjustable by moving the stopper.

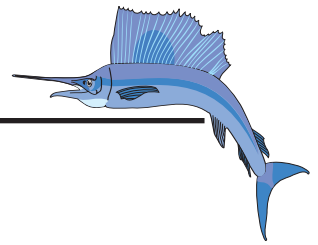
If you construct your own tagging pole, an old wooden broom or mop handle about five feet long works very well. A hole should be drilled with a 3/16 inch or No. 16 drill bit to a depth of 1.25 inches for the applicator tip (see diagram below). Use a good grade epoxy to secure the applicator pin and seal out saltwater. **Please contact our office if you need an applicator tip.**



PAPER REDUCTION ACT NOTIFICATION

NOAA Fisheries needs the information reported on Billfish Tagging Cards and the International Billfish Angler Survey for the conservation and management of fishery resources. The information will be used for billfish research. Public reporting time and effort for the Billfish Angler Survey card is estimated to average five minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. You can send comments regarding this burden estimate to the SWFSC, 8901 La Jolla Shores Drive, La Jolla, CA 92037. The information submitted will become public record. Notwithstanding any other provision of the law, no person is required to, nor shall any person be subject to a penalty for failure to comply with collection of information subject to the requirements of the Paperwork Reduction Act.

BILLFISH ANGLER SURVEY cards for fishing in the **2013** calendar year were mailed in early 2014. If you have not already completed the survey, please fill it out and return the post-paid form as soon as possible. Additional 2013 Angler Survey forms are available to all billfish anglers by contacting this office or they can be downloaded from our website. See <http://swfsc.noaa.gov/FRD-Billfish/>. We update our mailing list each year, so if you wish to continue to receive the Billfish Newsletter but did not fish, please indicate "NO FISHING" on the Billfish Angler Survey form and return it to the SWFSC and your name will be retained on our mailing list. Your continued response to the Billfish Angler Survey is appreciated and is critical to monitoring changes in abundance of billfish stocks important to recreational and commercial fisheries.



Tagging Guide

1. BEFORE YOU CATCH YOUR FISH:

First decide if you plan to tag and release any fish caught. If so, circle hooks are preferred because they reduce deep or foul hooking when bait fishing. We recommend that you do not use double rigged J hooks if you plan to release your catch.

2. WHILE FISHING:

Never attempt to tag a fish while it is jumping or thrashing about. Bring your fish to leader as quickly as possible but wait until the fish is calm and swimming beside the boat before tagging. **Check for previous tags!**

3. TAGGING:

Tag the fish as it is being towed alongside the boat by inserting the tag in the back muscle below the tallest part of the dorsal fin. Avoid the gills, head, and stomach. Take care not to allow your fish to injure itself on the vessel's transom or hull.

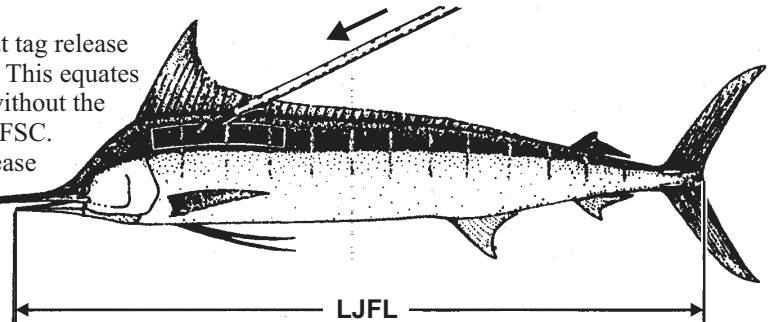
4. RELEASING:

Revive the fish by slowly towing it through the water, allowing water to flow over the gills until its normal color returns and it begins to swim on its own. Remove the hook with a good pair of pliers, or if deeply hooked in the throat or stomach, release it by cutting the leader as close to the hook as possible.

5. COMPLETE THE BILLFISH TAGGING REPORT CARD:

Fill out the yellow Billfish Tagging Report card completely and as accurately as possible indicating latitude and longitude, date of release, estimated length (lower jaw-to-fork length; LJFL) and estimated weight of the fish. Include name and mailing address of the angler and boat captain and other remarks as appropriate. Return cards promptly to us at the Southwest Fisheries Science Center.

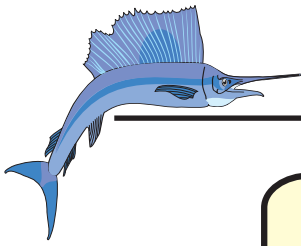
PLEASE NOTE: Billfish recaptures without tag release information now stand at roughly 12 percent. This equates to over 6,200 billfish that have been tagged without the release information being returned to the SWFSC. Make your tagging effort count. Tag and release your fish skillfully and return the yellow BILLFISH TAGGING REPORT promptly. Though easily forgotten in the heat of battle and glow of success, returning the card is the most critical and final step in tagging your fish.



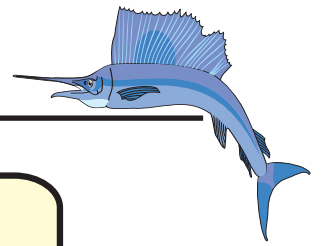
COMPLETING THE BILLFISH TAGGING REPORT CARD

- Fill out the card completely and as accurately as possible.
- Indicate latitude, longitude and locally known fishing area.
- Estimate the length of the fish as "tip of lower jaw-to-fork" length (LJFL).
- Estimate weight of the fish.
- Include any remarks, club name and complete address of the angler and the boat captain.
- Return cards promptly to the Southwest Fisheries Science Center. Tagging is of no value unless this Billfish Tagging Report card is returned. Postage is paid if mailed in the U.S.A.

NOAA, National Marine Fisheries Service		If mailing outside USA, postage must be affixed	
BILLFISH TAGGING REPORT		Please return card, Otherwise tagging is of no value	
PLEASE FILL IN DETAILS AND MAIL TODAY.		TAG #: A33333	
Latitude: 33° 14' N	Longitude: 118° 14' W		
Locality: East End Catalina Is. CA			
Species: Striped Marlin	Date: 6/10/98		
Estimate length (tip of jaw to fork of tail): 72 inches.	Weight: 140 lbs.		
Fish Condition: Good	Bait type: Plastic Lure		
Angler: Bill Fish	Fight time (minutes): 23		
Address: P.O. Box 271 La Jolla, CA		Zip: 92038	
Club: Anglers Club			
Captain: Capt. Joe Dew	Boat name: Good Grief		
Address: P.O. Box 271 La Jolla, CA		Zip: 92038	
<small>Response to this form is voluntary. OMB 0648-0009, expiration date 08/31/2001 NOAA 88-162, 2/99</small>			



2013 Billfish Newsletter



SEND US YOUR PHOTOGRAPHS

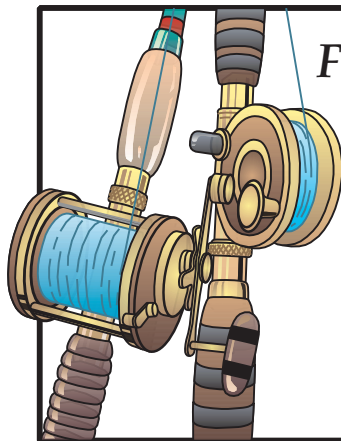
Cover photo: The winning cover photo was taken by Ron Hansen. The photo captures a blue marlin that was caught off Hawaii in 2011.

We are looking for good photographs of billfish for the cover of the next Billfish Newsletter. Color or black-and-white photos of billfish and/or fishing activities are appropriate. Digital photos are preferred, but we also accept hard copy. We would appreciate you sharing your photos and will give you full credit in the 2014 issue.

A billfish T-shirt will be awarded to the winning photographer.

ACKNOWLEDGMENTS

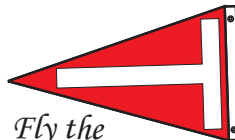
The information reported here would not be possible without the cooperation of thousands of anglers and volunteers who support these investigations. Their efforts and assistance are greatly appreciated. This and past *Billfish Newsletters* and the 2013 Angler Survey form can also be accessed through the SWFSC's webpage at <http://swfsc.noaa.gov/FRD-Billfish/>. We welcome reader comments and suggestions concerning the content of the *Billfish Newsletter*.



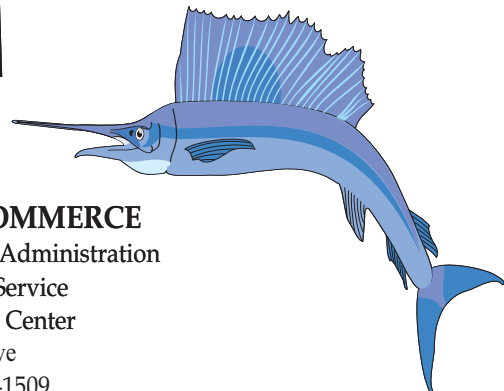
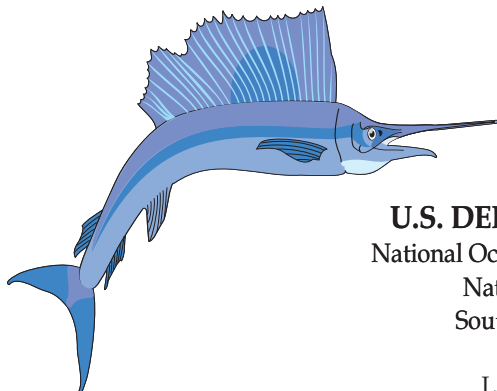
Fine fishing for now and forever!

*James Wraith and Suzanne Kohin,
Fishery Biologists*

Southwest Fisheries Science Center
8901 La Jolla Shores Drive
La Jolla, CA 92037-1509
Phone - (858) 546-7000
FAX - (858) 546-7003
email: james.wraith@noaa.gov
suzanne.kohin@noaa.gov



*Fly the
Tagging Flag!*



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
8901 La Jolla Shores Drive
La Jolla, California 92037-1509